PHY 102 TUTORIAL QUESTIONS 2017/2018 ACADEMIC SESSION

1. The property of coil by which a counter e.m.f. is induced in it when the current through the coil changes is known as (a) self-inductance (b) mutual inductance (c) series aiding inductance (d) capacitance

2. As per Faraday's laws of electromagnetic induction, an e.m.f. is induced in a conductor whenever it (a) lies perpendicular to the magnetic flux (b) lies in a magnetic field (e) cuts magnetic flux (d) moves parallel to the direction of the magnetic field

3. Which of the following circuit element stores energy in the electromagnetic field ? (a) Inductance (b) Condenser (c) Variable resistor (d) Resistance

4. The inductance of a coil will increase under all the following conditions except (a) when more length for the same number of turns is provided

(b) when the number of turns of the coil increase (c) when more area for each turn is provided (d) when permeability of the core increases

5. Higher the self-inductance of a coil, (a) lesser its weber-turns (b) lower the e.m.f. induced (c) greater the flux produced by it (d) longer the delay in establishing steady current through it

6. In an iron cored coil the iron core is removed so that the coil becomes an air cored coil. The inductance of the coil will (a) increase (b) decrease (c) remain the same (d) initially increase and then decrease

7. An open coil has (a) zero resistance and inductance (b) infinite resistance and zero inductance (c) infinite resistance and normal inductance (d) zero resistance and high inductance

8. Both the number of turns and the core length of an inductive coil are doubled. Its self-inductance will be (a) unaffected (b) doubled (c) halved (d) quadrupled

9. If current in a conductor increases then according to Lenz's law self-induced voltage will (a) aid the increasing current (b) tend to decrease the amount of cur-rent (c) produce current opposite to the in-creasing current (d) aid the applied voltage

10. The direction of induced e.m.f. can be found by (a) Laplace's law (b) Lenz's law (c) Fleming's right hand rule (d) Kirchhoff s voltage law.

11. Air-core coils are practically free from (a) hysteresis losses (b) eddy current losses (c) both a and b (d) none of the above

12. The magnitude of the induced e.m.f. in a conductor depends on the (a) flux density of the

magnetic field (b) amount of flux cut (c) amount of flux linkages (d) rate of change of flux-linkages

13. The magnitude of the induced e.m.f. in a conductor does not depends on the (a) flux density of the magnetic field (b) amount of current (c) amount of flux linkages (d) rate of change of flux-linkages

14. For mutual induction to occur, there muts be direct contact between the two inductor coils. (a) true (b) false (c) a and b (d) none of the above

15. Mutually inductance between two magnetically-coupled coils depends on (a) permeability of the core (b) the number of their turns (c) cross-sectional area of their common core (d) all of the above

16. In case of an inductance, current is proportional to (a) voltage across the inductance (b) magnetic field (c) both (a) and (b) (d) neither (a) nor (b)

17. An e.m.f. of 16 volts is induced in a coil of inductance 4H. The rate of change of current must be (a) 64 A/s (b) 32 A/s (c) 16 A/s (d) 4 A/s

18. The core of a coil has a length of 200 mm. The inductance of coil is 6 mH. If the core length is doubled, all other quantities, remaining the same, the inductance will be (a) 3 mH (b) 12 mH (c) 24mH (d) 48mH

19. A 500 turns solenoid develops an average induced voltage of 60 V. Over what time interval must a flux change of 0.06 Wb occur to produce such a voltage ? (a) 0.01 s (b) 0.1 s (c) 0.5 s (d) 5 s

20. An average voltage of 10 V is induced in a 250 turns solenoid as a result of a change in flux which occurs in 0.5 second. The total flux change is (a) 20 Wb (b) 2 Wb (c) 0.2 Wb (d) 0.02 Wb